Open Literature Review Summary

Chemical Name: Imidacloprid

CAS No: 138261413

MRID: 47699420

Record Number and Citation:

Schmuck,R., Schoning,R. "Effects of imidacloprid residues in sunflower honey on the development of small bee colonies under field exposure conditions."

Summary of Study Findings:

This study was conducted in compliance of good laboratory practices (GLP). The focus of the study was to evaluate any the harmful effects of imidacloprid contaminate sunflower honey on honeybee (*Apis mellifera*). Small honeybee hives were confined on oat plots by tunnel cages.

The duration of the study was from May 28 to July 7, 1999, 39 days total. The nominal concentration of imidacloprid ranged from 0, 2, 5, 10, 10, or 20 μg/kg. One of the treatment groups (10 μg/kg) was fed honey from a previous contaminated imidacloprid testing honeycomb. This honey comb, from a previously range finding study conducted a year earlier, was frozen and then incorporated in to this study.

The endpoints included: morality, foraging intensity, honey and pollen consumption, comb cell production, hive weight, egg laying activity, and overall colony strength.

The sunflower honey was confirmed to be free of other contaminate before addition of imidacloprid. Pollen, uncontaminated, was also offered the bees as a protein source.

Flight activity of foraging honeybees at three locations: nectar feeder, pollen feeder, and tent roof were all comparable between groups. The cumulative quantity of collected nectar, comb area, and weight were also comparable.

Areas that were affected in the health of the hive was the amount of pollen stored, nectar storage, and morality. Morality was greatest at 20 μg/kg treatment group along the tent margins followed by the control. The amount of comb area containing eggs, larva and (capped-uncapped) brood were extremely inconsistence across all hives.

The author stated that no treatment related effects were seen with all levels of imidacloprid exposed hives.

Rationale for Use:

Interact between imidacloprid and bees did not yield a negative effect

Limitations of Study:

The combination of treated honey and an previously exposed imidacloprid combs allows for data gaps when comparing the two.